

CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION		CV date	January 2023
First name	José Manuel		
Family name	Guillamón Navarro		
Gender (*)	Male	Birth date	06/07/1967
ID number	85080159P		
e-mail	guillamon@iata.csic.es	URL Web	https://www.iata.csic.es/es/personal/jose-manuel-guillamon-navarro
Open Research and Contributor ID (ORCID)(*)	0000-0001-5414-0787		

(*) Mandatory

A.1. Current position

Position	Full Research Professor		
Initial date	02-07-2007		
Institution	Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC)		
Department/Center	Instituto de Agroquímica y Tecnología de los Alimentos (IATA)		
Country	Spain	Tel. number	635104869
Key words	Industrial yeasts, genetic improvement, biotechnology, wine, metabolic engineering, cell factory, bioactive molecules		

A.2. Previous positions (research activity interruptions, art. 45.2.c)

Period	Position/Institution/Country/Interruption cause
1994-2007	Assistant Professor at Universitat Rovira I Virgili
1998-1999	Postdoctoral Fellowship at the Utrecht University
Sept 2004-March 2005	Visiting scientist at Institute for Wine Biotechnology, Stellenbosch University, South Africa
2007-2014	Associate Professor at Universitat Rovira I Virgili
2014 to date	Associate Professor of Food Technology at University of Valencia

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
B.Sc. Biology	University of Valencia	1990
PhD Biology	University of Valencia	1996

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Research activity tracking: During my PhD, we were pioneers in the development of molecular techniques for wine yeast identification and strain genotyping. A great contribution of this period was the setup of a rapid technique for yeast identification based on the RFLPs of the of the ribosomal internal transcribed spacer (ITS) region (Guillamón et al., 1998; DOI: 10.1007/s002030050587), which has so far received 299 cites. This technique is currently a routinely tool in many yeast labs. During my period as assistant professor in the Rovira I Virgili Universtiy, we did apply most of these molecular techniques to study the yeast ecology and dynamic during wine fermentations and how yeast populations were influenced by different viticulture or oenological practices. A practical consequence of these studies of wine yeast microbiota was the selection of several *Saccharomyces cerevisiae* strains, which are currently marketed by the company Lallemand. Among the study of the impact of the oenological practices on yeast microbiota, we specialized in two important topics: low temperature fermentation and nitrogen metabolism, which were our main researching lines after my incorporation to IATA-CSIC. The results of these topics have turned out in the publication of more than 50 papers,

being the most cited researchers in these topics. We have generated new insights about physiology, metabolic and molecular adaptation of yeast at low temperature and we have applied this new knowledge to obtain genetic improved strains by adaptive evolution (López-Malo et al., 2015) and by interspecific hybridization (García-Ríos et al., 2019). In terms of funding, I would like to highlight that I was the coordinator of the European project “YeastTempTation” of the ERA-IB 6th call, which aimed to obtain adapted yeast strains at low and high temperature.

Nitrogen metabolism, which is the main topic of this proposal, also arouse a lot of interest in the wine industry. Due to the current scenario of climate change, grapes musts are impoverished in nitrogen, jeopardizing the correct development of wine fermentations. This researching line has allowed us to be funded by important companies devoted to the supply of consumables to the wineries, such as Agrovín and Lallemand. As consequence of our research, Agrovín launched a new nitrogen supplement marketed as “Actimax Natura”. Moreover, Lallemand have funded us several international projects, some of them in collaboration with other foreign groups.

More recently, the presence of aromatic amino acids (AAA)-derived compounds in fermented beverages has been related with yeast nitrogen metabolism. However, few information was available about the synthesis of these bioactive molecules by yeasts during fermentation processes. To this aim, we initiated a new research line to improve our knowledge about the molecular and physiological mechanisms involved in the production of bioactive compounds derived from the AAA metabolism. We have been studying the presence and synthesis of these molecules during wine fermentations within the framework of the projects BIOACTIYEAST (AGL2013-47300-C3), SYNBIOFERM (AGL2016-77505-C3) and, recently, CONSORWINE (PID2019-108722RB-C31). All these projects were coordinated with the group of Professors García-Parrilla and Troncoso from the University of Sevilla and Professor Mas from the Rovira I Virgili University (URV). It is worth to highlight that we recently described the biochemical route involved in the production of the different indolic compounds using tryptophan as precursor, which was published in the most prestigious journal related with melatonin (Muñiz-Calvo et al., 2019; doi: 10.1111/jpi.12554). Our current understanding of the AAA metabolism in yeasts allow us to go a step further and to use the most important wine yeast, *S. cerevisiae*, as a cell factory for the production of very appealing molecules by a different strategy of metabolic engineering. These overproducer strains could be utilized for the synthesis of different added-value molecules by sustainable biobased processes, at low cost and in a purified form. The accomplishment of these premises will enable the introduction of a new set of products, such as foods enriched with these molecules, into the markets, with the corresponding benefit for the consumers. We can go on with this interesting research line thanks to the recently funded project TED2021-132386B-I00 of the call “Proyectos de Transición Ecológica y Digital” of the Spanish Ministry.

Scientific output: PI of 19 competitive projects, funding by regional, national and European agencies. Number of publications in international journals: 139. Patents: 4, 3 of them transferred to the industry. Invited speaker to 30 international and national congresses.

Training: Supervision of 16 PhD Theses and 20 MSc Theses

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. S Muñiz-Calvo, R Bisquert, E Fernández-Cruz, MC García-Parrilla, **JM Guillamón** (2019) Deciphering the melatonin metabolism in *Saccharomyces cerevisiae* by the bioconversion of related metabolites. *Journal of Pineal Research* 66:e12554
2. E García-Ríos, A Guillén, R de la Cerda, L Pérez-Través, A Querol, **JM Guillamón** (2019) Improving the cryotolerance of wine yeast by interspecific hybridization in the genus *Saccharomyces*. *Frontiers in Microbiology* 9: 3232
3. E García-Ríos, E Barrio, S Puig, **JM Guillamón** (2019) Molecular and physiological characterization of a new chromosomal rearrangement involved in sulfite adaptation of wine yeast. *Environmental Microbiology*, 21: 1771-1781.

4. Y Su, A Gamero, ME Rodríguez, CA Lopes, A Querol, **JM Guillamón** (2019) Interspecific hybridisation among diverse *Saccharomyces* species: A combined biotechnological solution for low-temperature and nitrogen limited wine fermentations. *International Journal of Food Microbiology*, 310: 108331
5. Y Su, Seguinot P, Bloem A, Ortiz-Julien A, Heras JM, **Guillamón JM**, Camarasa C (2020) Isotopic Tracers Unveil Distinct Fates for Nitrogen Sources during Wine Fermentation with Two Non-*Saccharomyces* Strains. *Microorganisms* 8:904
6. S Muñoz-Calvo, R Bisquert, S Puig, **JM Guillamón** (2020) Overproduction of hydroxytyrosol in *Saccharomyces cerevisiae* by heterologous overexpression of the *Escherichia coli* 4-hydroxyphenylacetate 3-monooxygenase. *Food Chemistry*, 308: 125646
7. Y Su, L. García-Macías, JM Heras, A Querol, **JM Guillamón** (2021) Phenotypic and genomic differences among *S. cerevisiae* strains in nitrogen requirements during wine fermentations. *Food Microbiology*, 96: 103685
8. Y Su, JM Heras, A Gamero, A Querol, **JM Guillamón** (2021) Impact of Nitrogen Addition on Wine Fermentation by *S. cerevisiae* Strains with Different Nitrogen Requirements. *J Agric Food Chem.* 69:6022-6031
9. R Bisquert, A Planells-Cárcel, E Valera-García, **JM Guillamón**, S Muñoz-Calvo (2022) Metabolic engineering of *Saccharomyces cerevisiae* for hydroxytyrosol overproduction directly from glucose. *Microbial Biotechnology* (<http://doi.org/10.1111/1751-7915.13957>)
10. D Roldán-López, S Muñoz-Calvo, N Daroqui, M Knez, **JM Guillamón** and Roberto Pérez-Torrado (2022) The potential role of yeasts in the mitigation of health issues related to beer consumption. *Critical Reviews in Food Science and Nutrition* (<https://doi.org/10.1080/10408398.2022.2129584>)

C.3. Research projects

1. Análisis de los determinantes moleculares y fisiológicos en la síntesis de compuestos indólicos (AGL2016- 77505-C3-1-R). Coordinated Project among IATA (CSIC), Universidad de Sevilla (US) and Universidad Rovira i Virgili (URV). PI: **Jose M. Guillamón** (COORDINATOR). 01/01/2016 – 31/06/2020. 130.00 €
2. Tailoring thermotolerant yeasts for more sustainable, eco-efficient and competitive industrial fermentations (YeastTempTation). ERA-IB (PCIN-2015-143). European Project among IATA, Delft University, Universidade do Minho, UNICER and Lallemand. PI: **José M. Guillamón** (coordinator). 01/01/2016 – 31/12/2018. 575.00 € (200.000€ for IATA).
3. i-link 0946: Bases fisiológicas y moleculares de la utilización de nitrógeno durante la fermentación alcohólica. International network among IATA (CSIC), Universidad de Santiago de Chile and CONICET (Argentina). PI: **José M. Guillamón**. 01/01/2015 – 31/12/2016. 24.200 €
4. “Generation of new yeast strains for improved flavours and aromas in beer and wine (AROMAGENESIS)” Marie Curie, Initial Training Networks, Collaborative Project. H2020-MSCA-ITN-2017. Funding scheme: MSCA-ITN-ETN. Proposal number: 764364. Participants: IATA-CSIC, Trinity College (coordinator) y 10 more institutions (academia and companies). PI IATA: A Querol. 01/12/2017 - 30/11/2020.
5. MEmbrane Modulation for Bioprocess enhancement (MeMBrane). H2020, ERA-NET Cofund on Biotechnologies (ERA CoBioTech). “Biotechnology for a Sustainable Bioeconomy”. Participants: IATA-CSIC, Aston University, University of York, Forschungszentrum Jülich (FZJ), The University of Groningen; and the companies: Pakmaya (Turkey) y Lallemand Bio (Spain). PI: A Querol. 01/03/2018 - 28/02/2021: 1.856.000 € (150.000 € for IATA group)
6. Mejora de propiedades de interés biotecnológico en levaduras vínicas (PROMETEO/2020/014). Funded by Generalitat Valenciana. PI: Amparo Querol. 01/01/2020 – 31/12/2023, 269.739 €
7. Aprovechamiento de la diversidad genética y metabólica dentro de las levaduras de vino para mejorar la estabilidad y la bioactividad de los vinos (PID2019-108722RB-C31). Coordinated Project among IATA (CSIC), Universidad de Sevilla (US) and Universidad Rovira i Virgili (URV). PI: **José M Guillamón** (COORDINATOR). 01/06/2020 – 31/05/2023. 133.100 €

8. Sustainable biotechnological production of bioactive food ingredients derived from aromatic amino acids metabolism (TED2021-132386B-I00). PI: **José M Guillamón**. 01/12/2022 – 30/11/2024. 133.400 €
9. Plataforma integral para la producción y purificación biotecnológica de moléculas bioactivas para uso alimentario o nutracéutico mediante la levadura vínica *Saccharomyces cerevisiae* (BILTC22009). Convocatoria Bilateral CSIC y Tecnológico de Monterrey (Mexico). PI: **José M Guillamón**. 01/01/2023 – 31/12/2024. 23.501,40 €

C.4. Contracts, technological or transfer merits

1. Nutrientes nitrogenados en la fermentación alcohólica: necesidad y efecto sobre su desarrollo (Proyecto CENIT en Enología “Deméter”). Funded by AGROVÍN. PI: **José M. Guillamón**. 01/01/2008-31/12/2011. 40.600 €
2. Nitrogen metabolism of *Saccharomyces* and non-*Saccharomyces* commercial wine strains: phenotypic and genomic characterization. Funded by Danstar Ferment AG. PI: **José M. Guillamón**. 21/07/2016 – 21/07/2020. 113.000€
3. Generación de conocimiento para su aplicación en la mejora de la calidad del cava, incorporación de tecnologías y conocimientos preexistentes para la mejora del producto y de los procesos de elaboración del cava (CAVAWINNER). Funded by “Bodega Dominio de la Vega”. PI: **José M. Guillamón**. 01/09/2017 – 31/08/2021. 60.000 €
4. Vinos más naturales y saludables mediante el análisis y control microbiológico de fermentaciones y vinos en bodega. Funded by “Bodegas Murviedro”. PI: **José M. Guillamón**. 01/10/2018 – 31/03/2021. 67.820 €
5. Different approaches to get insights on nitrogen metabolism of non-conventional amino acids and their accumulation in wine yeasts. Funded by Lallemand Bio SL. PI: **José M. Guillamón**. 01/03/2021 – 28/02/2024. 75.000€
6. Obtención de una cepa cervecera mejorada en la producción de tirosol e hidroxitirosol: Optimización de las condiciones industriales para su síntesis. Funded by SOCIEDAD ANÓNIMA DAMM. PI: **José M. Guillamón**. 01/01/2021 – 31/12/2021. 28.507 €
7. Escrutinio de cepas sobre-productoras de tirosol e hidroxitirosol de manera nativa. Funded by SOCIEDAD ANÓNIMA DAMM. PI: **José M. Guillamón**. 01/01/2021 – 30/06/2021. 9.502 €
8. Diseño de un consorcio de microorganismos para la fermentación de vinos base para cavas de alta gama. Funded by CODORNÍU, S. A. PI: **José M. Guillamón**. 01/08/2021 – 31/12/2022. 30.200,64 €

C.5. Patents

1. Authors: M.J. Torija, N. Rozès, **JM Guillamón**, A. Mas. Title: Wine strain RV1. CECT number: 11462. Titular entity: Universitat Rovira i Virgili. Date: 01/11/1999. In exploitation by the Company Lallemand S.A. (commercial name RV1)
2. Authors: A. Mas, **JM Guillamón**, N. Rozès, M.J. Torija. Title: *Saccharomyces cerevisiae* URV-BE29. CECT number: 13008. Titular entity: Universitat Rovira i Virgili. Date: 07/04/2008. In exploitation by the Company Lallemand S.A. (commercial name CLOS)
3. Authors: A Querol, E Barrio, **JM Guillamón**. Title: Contract of exclusive license for the patent 200800286 "Microorganismo fermentador productor de altas concentraciones de glicerol y sus aplicaciones". Titular entity: CSIC. In exploitation by the Company Lallemand S.A. (commercial name Velluto Evolution)
4. Authors: **J.M. Guillamón**, Sara Muñiz-Calvo, Ricardo Bisquert. Title: patente P202031186 "Saccharomyces cerevisiae recombinante para la producción de hidroxitirosol". Titular entity: CSIC.